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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/657,627 09/08/00 SHINRIKI

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EXAMINER

IM22/0620

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ART UNIT

PAPER NUMBER

1762

DATE MAILED:

06/20/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

Office Action Summary

Application No.
09/657,627

Applicant(s)
Hiroshi Shinriki et al.

Examiner
Bret Chen

Art Unit
1762



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above, claim(s) 10 and 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 5 20) ☐ Other: _____

Art Unit: 1762

DETAILED ACTION

Claims 1-11 are pending in this application.

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-9, drawn to a method, classified in class 427, subclass 126.3.
 - II. Claims 10-11, drawn to an apparatus, classified in class 118, subclass 715.
2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process such as etching.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with David Hill on 6/7/01 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-9. Affirmation of this election must be made by applicant in replying to this Office action. Claims 10-11 are withdrawn from

Art Unit: 1762

further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

Priority

6. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

7. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

It is noted that the claimed invention is directed solely to a method. The examiner suggests amending the title to reflect same.

8. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Art Unit: 1762

Claim Rejections - 35 USC § 112

9. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 line 1, the term “A thin film” is a relative term which renders the claim indefinite. The term "thin" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

In claim 1 lines 2 and 5, the terms “the first step” and “the second step” lack antecedent basis. The examiner suggests deleting “the” and inserting --a--.

In claim 5 lines 5-10, the limitations are confusing. Is the “another gas” part of the diluent gas or the source gas? How does one dissolve a metal source in a gas? How does one evaporate the organic solvent when it is already in gaseous form? The same issues apply to claim 6.

In claim 5 line 8, the term “the organic metal sources” lacks antecedent basis.

In claim 7 line 2, the term “the oxidizing gas” lacks antecedent basis.

In claim 8, if the diluent gas is irrelevant, why use it? It is the examiner’s position that diluent gas is not a precursor gas involved in the reaction. Appropriate amendments are requested.

The other dependent claims do not cure the defects of the claims from which they depend.

Art Unit: 1762

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (6,190,728), Roeder et al. (5,876,503) or Desu et al. (5,817,170). Suzuki discloses a process for forming a thin film composed of a composite oxide such as a ferroelectric film (col.1 lines 5-9) wherein PT seeding layers and PZT films were utilized (col.4 lines 16-20). Roeder discloses a method for forming a multicomponent material layer (col.4 line 66 - col.5 line 11) in which a PbTiO_3 seed layer is formed followed by a PZT layer (col.9 lines 1-13). Desu et al. (5,817,170) discloses a method for producing a ferroelectric lead zirconate titanate dielectric by forming a lead titanate seeding layer followed by a lead zirconate titanate layer (col.4 lines 50-58). However, the references fail to teach a crystal nucleus of perovskite structure of an oxide made up of lead and titanium on a substrate.

It is noted that each of the above references clearly teach a seed layer of oxide made of lead and titanium. Given such a teaching, one skilled in the art would reasonably expect that these materials provide a benefit including increased growth and better electrical properties. It would have been obvious to utilize crystals of these materials with the expectation of obtaining similar results in the absence of a showing of unexpected results.

Art Unit: 1762

In claims 2-9, the applicant requires a specific pressure and the use of a diluent gas. It would have been obvious to one having ordinary skill in the art to have determined the optimum values of the relevant process parameters such as flow rates and carrier gases through routine experimentation in the absence of a showing of criticality.

Moynihan et al. (5,500,988) and Inam et al. (5,155,658) have been provided for additional information.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bret Chen whose telephone number is (703) 308-3809. The examiner can normally be reached on Monday through Thursday from 6:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck, can be reached on (703) 308-2333. The fax phone number for this Group is (703) 305-5408. Amendment After Finals should be faxed to (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.



bc

June 18, 2001